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Pointers on MAKING GOOD LAWNS

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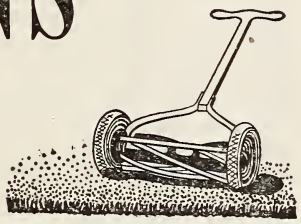

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FOURTEEN steps are necessary in making a good lawn.

1. Before excavation is started for the house, the top 5 or 6 inches of soil should be pushed off to one side until the building and grading operations are completed. Afterward, the topsoil should be spread evenly. Some topsoil is little better than the subsoil, but in most cases it is worth saving.

2. Building debris—plaster, stones, trash—should be removed, not buried.

3. The subgrade should be sloped away from the house. Terraces should be avoided if possible; slopes should be gradual to the sidewalk. A gentle slope away from the house will carry off water and reduce the risk of a damp basement.

4. If, in grading and leveling, the surface is raised around shade trees, provision should be made to protect the trees. Shallow wells of brick or stonework should be built around the trunks of the trees to allow air to reach the roots. Deep layers of soil around the trunk of a tree may kill it.

5. In establishing the subgrade, special attention should be given to spots that are likely to be poorly drained. Sometimes tile may be necessary. Consult competent authorities in putting in tile drains.

6. After the subgrade has been finished, about 75 pounds of lime (if soil tests show the need) and 25 pounds of superphosphate per 1,000 square feet should be harrowed or spaded into the subsoil to a depth of 3 or 4 inches. The lawn begins with the subsoil.

7. The topsoil should then be replaced and graded.

8. Lime, fertilizer, and other amendments, such as organic matter (peat, manure, compost, spent mushroom soil, and so on) should be incorporated into the topsoil before the finish grade is established. For many lawnmakers, cost and availability may determine the amounts. If one cannot get an analysis of degree of acidity from his county agent, State experiment station, or State department of agriculture, or if he does not test the soil himself with a soil test kit, a rough rule of thumb in the eastern half of the country is to apply 75 pounds of ground limestone on 1,000 square feet. Plenty of balanced fertilizer is

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needed—say 25 to 50 pounds of a commercial fertilizer of 5–10–5 analysis.

9. The surface should be smoothed by raking and rolling.

10. Then seeding, sodding, or sprigging may be done, depending upon the type of grass to be used and the rapidity of cover desired. Because of its relatively high cost, sodding is recommended only when there is need for rapid completion of the job.

Hand sowing of seed is usually the most satisfactory method of securing a complete and uniform coverage on a small lawn. The seed may be diluted by mixing it with soil or fertilizer. It should be divided in two lots. One lot should be broadcast while walking lengthwise of the area and the other lot should be sown while walking at right angles to the direction of the first sowing. The seed should be covered lightly by raking.

11. Light rolling will press the seed gently into the soil where it will be encouraged to germinate in the shortest possible time.

12. Spreading a bale of straw or hay to 1,000 square feet on slopes will reduce erosion, conserve moisture, and facilitate establishment. It seldom is necessary to remove the mulch. Special types of netting also may be purchased to protect new seedings.

13. New seedings (or sod or sprigs) may be complete failures unless adequate moisture is available constantly during the period of establishment. Watering need only be light, but it must be frequent enough to avoid drying of the surface soil where the new tender rootlets are gaining a foothold.

14. Mowing should be started as soon as there is enough top growth to cut with the mower set at the proper height for the principal species of grass planted. Delayed mowing should be avoided.

Keeping a Lawn in Condition

1. The lawn should be fertilized in the proper season—when the grass becomes thin or unthrifty. A commercial fertilizer of 5–10–5 (or similar) analysis is recommended. That means 5 percent nitrogen, 10 percent phosphoric acid, and 5 percent potash. A good standard is 20 pounds per 1,000 square feet. Because in some regions other types of fertilizers may be needed, it is wise to consult local and State authorities. In the cool humid regions, applications should be made in early fall and very early spring. In warm humid regions applications should be made in spring and early summer when the grass is growing actively. Fertilizer may be distributed by some of the fertilizer distributors on the market. Care must be used to prevent skipping and overlapping. Another good way is to broadcast the fertilizer by hand. If that method is used, the fertilizer should be divided into two lots. The first lot should be distributed while walking lengthwise of the area and the second lot should be broadcast while walking crosswise of the area, to insure a thorough and uniform coverage.

2. Soil tests are the basis upon which the need for lime should be determined. Generally speaking, soils in the eastern United States require lime.

Ground limestone is the cheapest form of lime. It is usually considered to be equal in value to other kinds.

Lime can be applied at any season—late fall or early spring are good times.

3. Frequent mowing with a sharp, properly adjusted mower will keep a lawn looking neat. Mowing also promotes tillering and spreading of the grass plants.

Height of mowing depends upon the dominant species of grass in the lawn. Stoloniferous (creeping or spreading) grasses—bent, Bermuda, Zoysia, centipede, St. Augustine—will withstand close mowing if they are kept fertilized. They may be kept mowed at ½ to 1 inch. The fescues, bluegrasses, and other grasses that do not produce stolons should be mowed at 1½ inches or higher.

4. Watering is the maintenance practice that is most often done incor-

rectly. The few rules are simple enough.

Do soak the ground thoroughly at infrequent intervals when the grass begins to suffer from drought. Water just often enough to keep the plants alive.

Do not sprinkle lightly every day "just to cool things off." Light sprinkling encourages shallow root systems and helps crabgrass more than it does the permanent grasses. It does more harm than good.

Many of the grasses of the cool humid region go through a dormant period in midsummer. If they are forced into active growth, the plants may actually be injured.

5. Rolling the lawn in the spring helps to firm the soil that has been loosened by the heaving action of frost. The ground should be moist, but not wet enough to "puddle" from the rolling operation. For the same reason, the roller must not be too heavy, or the soil will be compacted too tightly.

6. To keep weeds out, grow good grass—that is, proper management of the turf is the most important phase in the growing of a weed-free lawn. A good, healthy turf will not allow weeds to encroach. Any weed-control measure must be accompanied by appropriate fertilizer practices, and reseeding where necessary to fill in bare spaces.

Broadleaf weeds generally can be controlled by 2,4–D, which is sold under many trade names and in a number of forms. Manufacturer's directions should be observed strictly to avoid injury to shrubs or trees. Sprayers and other containers should be cleaned thoroughly after they have been used to apply 2,4–D; otherwise, plants sprayed subsequently with the equipment may be injured by the 2,4–D residue. In fact, it is wise to have two sets of spraying equipment; one for 2,4–D and one for other purposes.

Experiments to date have established that 2,4–D is not harmful to persons or animals, a point to be considered by those who have children and pets that play on the lawn.

Experimental work in controlling weeds has been done with a great many other chemicals, arsenicals, chlorates, dinitro compounds, various petroleum fractions, and others. All have some value, but none of them (except lead arsenate) can be recommended without qualification. If they are to be used, workers at an experiment station or other authorities should be consulted. If used improperly the chemicals can be harmful to the grass and to the persons who handle them or come in contact with them.

Lead arsenate is a poisonous compound, but if one is careful he can use it with relative safety to himself, children, pets, and plants. It is effective against chickweed, Poa annua, and crabgrass in the more acid soils. In heavier soils high in lime and phosphorus its effects have been variable and repeated applications may be necessary. Lead arsenate should be applied at the rate of 20 pounds per 1,000 square feet. It may be applied at any time of year—fall is as good a time as any. Lead arsenate also is effective against most insects that live in the soil.

7. Insects most troublesome in lawns are beetle grubs, cutworms, armyworms, sod webworms, ants, chinch bugs, and mole crickets. Ticks and chiggers are not harmful to the lawn but they are a nuisance to the lawn owner and his children.

Most of the turf insects can be controlled by various DDT compounds. Ants, mole crickets, and chinch bugs are not readily controlled by DDT, but can be checked by the Chlordane products. These materials are sold under various trade names and in several forms. The manufacturers' directions should be followed. Advice about them can be had from county agents and State entomologists.

Most species of earthworms may be controlled by the use of lead arsenate at the rate of 20 pounds to 1,000 square feet. Lead arsenate is effective against grubs and other soil insects but it is not so economical as some of the newer insecticides. We mention earthworms because, although they are

not insects and may not be pests, they might be numerous enough to make the lawn unsightly with their casts.

8. Disease control measures may be necessary on some specialized lawns. Bent lawns are susceptible to attacks of brownpatch and dollarspot.

Brownpatch may be checked by the use of Tersan. Dollarspot may be controlled by the use of mercury or cadmium compounds. These materials should be used according to the manufacturers' directions.

Most of the diseases attacking turf grasses are not easily controlled. Some new strains of grasses being developed at State and Federal experiment stations are resistant to disease. Your experiment station will be the source of information regarding the development of any new strains or species that may be adapted to your area.

9. Densely shaded areas under trees often present problems in the growing of a good turf. There are several reasons: Competition for nutrients and moisture by tree roots, the shading effect of the foliage, and the smothering of turf by fallen leaves.

There are ways to combat these difficulties. Deep placement of fertilizer around trees and heavy fertilizer applications on the turf may compensate for the scarcity of available plant food. The use of shade-tolerant species (the fescues and trivialis bluegrass in the cool humid regions, and the Zoysia grasses and St. Augustine in the warm humid regions) will overcome the shading effect. The prompt raking or sweeping of fallen leaves prevents any smothering effect which they might have. The grass should be forced into rapid growth during the period when the leaves are off the trees in order that strong turf will be established by the time trees begin growth in spring.

If, despite good fertilization, grass will not grow in your shaded areas, ground covers like vinca, pachysandra, and thyme are sometimes used.

10. The growth of algae is a condition caused by standing water on the surface of the soil. Improving the drainage so that water may be removed from the soil and loosening the soil to provide conditions favorable for grass will eliminate the condition.

Slime molds are organisms that cause gray, unsightly patches in lawns during wet seasons. These primitive fungi are not harmful to the grass and may be brushed off the grass blades when it is dry. The fruiting bodies of the fungi may give off a "smoke" or "dust" of spores when disturbed.

Renovating the Lawn

To renovate a lawn:

Mow the old stand of grass closely.

Apply weed-control materials if necessary.

Rake severely or cultivate with a hand disk or spiker to loosen surface soil.

Apply fertilizer and lime as needed.

Seed, sod, or sprig.

Roll.

If the ground is bare, apply mulch on slopes.

Water.

Mow as soon as there is enough growth.

Renovation becomes necessary when the turf is wholly undesirable and when replanting to the same or to a different grass is contemplated.

It is essential first to determine the reason for the unsatisfactory turf and to plan a program that will correct the previous deficiencies. Unless all the factors for satisfactory plant growth are favorable, the turf will become unsatisfactory again in a year or so. The details of the renovation program will depend largely upon the conditions that must be corrected or modified. It is best to seek expert advice when planning renovation.

Destruction of all unwanted growth usually is the first step. To accomplish this it is best to mow closely and remove the clippings. The use of strong chemicals to kill weeds is justified in a renovation program.

Selectivity is secondary because the area is to be replanted and the loss of

some desirable grass is not likely to be serious. Sodium arsenite is favored by many greenkeeping superintendents for the renovation of turf because planting can be accomplished very soon after its use. No general recommendations for any chemical can be made here—it is impossible on a subject like this to give suggestions that will hold good for the whole country. Always seek the advice of your county agent, extension specialist, experiment station, the greenkeeper near you, or the manufacturer or dealer of the product you plan to use.

Preparation of a seedbed is essential to a successful job of replanting the area. Lime (if needed) and fertilizer should be well incorporated by raking or spiking. Other operations follow in logical order and may be the same as for building the lawn.

Grasses for Lawns

In choosing a grass for his lawn, the owner usually has the choice of selecting a grass that will thrive under existing conditions or of selecting the grass that he wants and then modifying the conditions to meet the requirements of that grass.

Grasses suitable for lawns in the cool humid region are: Kentucky bluegrass, red fescue, Alta fescue, bentgrass, redtop, ryegrass, and *Zoysia japonica.*

Grasses suitable for lawns in the warm humid region are: Bermuda, centipede, carpetgrass, St. Augustinegrass, and the *Zoysia* species.

In the dry-land area, buffalograss and the grama grasses are suitable on nonirrigated areas. Crested wheatgrass (Fairway strain) is used in the Northern Great Plains. Where irrigation is practiced, Kentucky bluegrass and bentgrass do well in the cooler areas and Bermuda-grass in the warmer sections.

Generally recommended seeding rates are: Bermuda-grass, carpetgrass, and the bentgrasses, 4 ounces to 1,000 square feet; buffalograss, 12 ounces to 1,000 square feet; the grama grasses, 1 pound to 1,000 square feet; Kentucky bluegrass, red fescues, Alta fescue, redtop, the ryegrasses, and crested wheatgrass (Fairway strain), 2 pounds to 1,000 square feet.

Requirements

Grasses for which no seed is available and which must be planted vegetatively are centipedegrass, St. Augustinegrass, and the Zoysias. Selected strains of Bermuda-grass must also be planted vegetatively because no seed is available.

Grasses that require a well-drained soil are Kentucky bluegrass, red fescue, Bermuda, centipede, grama, buffalo, and crested wheat. Those more tolerant of poorly drained soils are bentgrass, the Zoysias, carpetgrass, and St. Augustinegrass.

Grasses that require a relatively high level of fertility are Kentucky bluegrass, Bermuda, and bent. Those tolerant of lower levels of fertility are red fescues, the Zoysias, carpetgrass centipedegrass, St. Augustinegrass, grama, buffalograss, and crested wheatgrass.

The grasses that do well in shade are red fescue, St. Augustine, and the Zoysias. Grasses that require more sunlight are bent and centipede. Those that have a high sunlight requirement are the Kentucky bluegrass, Bermudagrass, carpetgrass, grama, the buffalograss, and crested wheatgrass.

Grasses that need a large amount of moisture are Kentucky bluegrass, bent, carpetgrass, and St. Augustinegrass. Drought-tolerant grasses are red fescue, the Zoysias, Bermuda, and centipede. Grasses that are extremely drought-hardy are the gramas, buffalograss, and crested wheatgrass.

Bentgrass should be mowed to one-half inch or less. The Zoysias, Bermuda, carpet, centipede, and St. Augustine should be cut at one-half inch or 1 inch. Kentucky bluegrass, red fescue, grama, buffalo, and crested wheatgrass should be cut 1½ inches or higher.

Good Turf Needs Little Water

Research shows that lawn turf, if irrigated, should receive only enough water to keep it alive and growing slowly. An excess of irrigation water not only is wasteful, but it is distinctly harmful to the soil and to the turf. Generous feeding of turf grasses helps to reduce drought injury.

Soil Compaction Preventable

One reason for poor turf is compaction of the soil. Water and fertilizer enter compacted soil slowly and with great difficulty. Practices have been developed which will reduce rainfall runoff and which will reduce the need for supplemental water on turfed areas. The first step is periodically to cultivate and aerify the soils under the turf. Machines have been developed to do this. Too expensive for a homeowner to purchase, they can be rented from nurserymen and landscape gardeners, or the home lawn can be aerified on contract.

If done properly, aerification of turfed areas in no way interferes with the use of the turf. The surface is not roughened even on the finest golf course putting greens. Water and fertilizer enter aerified soils easily. Soil compaction is destroyed and grass roots grow deeper, thus making the turf more drought-tolerant. Aerified turf requires less than half the irrigation water needed by turf growing on compacted soils.

Conserve Water

Water is our most valuable national resource, which is in critically short supply in many areas. Compacted soils, which cause up to 80 percent of a single rainfall to be lost in runoff, can be made porous by aerification so that much of this wastage is stopped. By using more drought-tolerant species (low water requirements) we can use less irrigation water without sacrificing turf quality. Thus more water will be available for industry and for agriculture.

Combination Turf Shows Promise

Combinations of cool-season grasses (bluegrass, fescue, bentgrass) with warm-season grasses (bermuda, zoysia) are showing promise for year-round excellence, greatest freedom from weeds, and for economical maintenance. The new Merion (B–27) bluegrass is one of the best of the cool-season grasses tested thus far in combination with the warm-season grasses. Alta and Kentucky 31 fescue also show promise, especially for turf where fine texture is not essential or important.

No general recommendation can be given at this time. As research results on these and other problems become available they will be reported to the public.

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